

APPENDIX H

Appendix H**GROUND WATER PROTECTION PROGRAMS**

Ground water programs in Virginia strive to maintain existing high water quality through adopted statutes, regulations, and policies. Advancing ground water protection efforts is the goal of many state programs in numerous state agencies. In late 1986 an interagency committee was formed to stimulate, strengthen, and coordinate ground water protection activities in Virginia. The Ground Water Protection Steering Committee (GWPSC) continues to meet bi-monthly with representation from the following agencies:

Department of Environmental Quality (DEQ)
Department of Health (VDH)
Chesapeake Bay Local Assistance Department (CBLAD)
Department of Mines, Minerals, and Energy (DMME)
Virginia Polytechnic and State University (VPI&SU)
Department of Housing and Community Development (VDH&CD)
Department of Agriculture and Consumer Services (VDACS)
Department of Conservation and Recreation (DCR)
Department of General Services, Division of Consolidated Laboratories (DCLS)
Department of Business Assistance (DBA)
US Geologic Survey (USGS)

The following paragraphs briefly describe ground water protection activities at member agencies.

Wellhead Protection Efforts: Building grassroots support for ground water and wellhead protection continues to be priorities of the GWPSC. Accomplishments to date include the development and distribution of a 1991 publication Wellhead Protection: A Handbook for Local Governments in Virginia and a 1993 publication on wellhead protection activities in the Commonwealth (Wellhead Protection: Case Studies of Six Local Governments in Virginia), hosting a number of one day workshops, and the voluntary completion of Biennial Wellhead Protection Reports. Future efforts will include cooperating with the Virginia Department of Health on source water protection issues. Funding for GWPSC activities, including wellhead protection, is provided through DEQ's Federal Ground Water Protection Grant.

Ground Water Management Act of 1992: The 1992 session of the Virginia General Assembly adopted the Act and repealed the Ground Water Act of 1973. The Act establishes criteria for the creation of ground water management areas and requires persons who withdraw more than 300,000 gallons of ground water per month to obtain permits. The Act requires that previously exempted agricultural ground water withdrawals obtain ground water withdrawal permits. The DEQ adopted regulations to implement the Act in September of 1993. This regulation is currently in the process of amendment to include specific requirements for agricultural ground water withdrawal permits and to require DEQ to perform technical evaluations of proposed withdrawals.

Underground Storage Tank (UST) Program: The DEQ currently maintains records on some 74,000 regulated USTs at 25,000 facilities in Virginia. The UST program maintains a computer database of all UST information and tracks the reporting of installations, upgrades, repairs, and closures. Local building/fire officials assist by permitting UST activities statewide. Compliance monitoring is performed on a periodic basis and includes computer searches, outreach through presentations and informational mailings, compliance mailings, and random site inspections. By December 22, 1998, all existing (pre-1988) USTs must be upgraded to new tank standards, replaced, or closed. The DEQ conducted 6,000 UST inspections during 1997 to inform owners of this deadline. Federal grant funds and matching State funds support this program.

Leaking Underground Storage Tank (LUST) Program: The LUST side of the UST program is involved in overseeing leaks from underground storage tanks. Regional Office Ground Water staff performs initial investigations and direct owners/operators to take appropriate remediation activities. Regional Office staff review all required reports and issue corrective action plan (CAP) permits as needed. Central office staff provides audit/review of regional office approved site characterization (SCR) reports and CAPs and assist the regional staff as necessary. To assist owners and operators with UST releases, the tank program maintains procedures for UST owners/operators to obtain reimbursement for certain corrective action costs and third party claims through the Virginia Petroleum Storage Tank Fund (VPSTF). A combination of Federal LUST Trust Funds and VPSTF monies are used to implement this effort.

In cases where owners/operators cannot be identified or are unable to act effectively the DEQ LUST staff utilize a private contractor to investigate and cleanup. The LUST staff also manages the alternate water supply (AWS) effort and provides technical review of reimbursement requests for reimbursing owners/operators who have spent more than their limit of financial responsibility.

Aboveground Storage Tank (AST) Program: The DEQ has proposed a new regulation that will consolidate three existing regulations and aid DEQ efforts to eliminate duplication in regulations, provide uniformity in regulation, streamline government services, and increase performance and efficiency. The existing regulations relate to the 9,968 presently registered ASTs/facilities located in the Commonwealth that have an individual AST capacity of 660 gallons or an aggregate facility capacity of 1,230 gallon or more of oil. Proposed additions to the regulations will establish criteria for granting) variances from the AST Pollution Prevention Requirements and will allow DEQ to evaluate and take the necessary steps to accept US Coast Guard and EPA approved response plans either wholly or with state specific information added. Registration fees, "Oil Discharge Contingency Plan" fees, and State funds support the AST program.

Waste Permitting Activities: The Resource Conservation and Recovery Act (RCRA) Base Program addresses ground water quality issues at both permitted and unpermitted land-based units. Information is maintained for non-Hazardous and Solid Waste Amendment (HWSA) sites and is divided into two sectors. The term "sites" refers to facilities; most facilities have more than one regulated unit. There are a total of 47 units among 29 facilities. The first sector, "Base Program Correction Action" sites are permitted units required to perform corrective action if the

ground water concentrations exceed established Ground Water Protection Standards. The second sector is "Unpermitted Land Disposal Facilities (LDF)" where continued operation of the facility is contingent upon removal or decontamination of contaminated media. In instances where the LDF is closed, ground water monitoring is required to demonstrate that closure performance standards are met. When standards are not met, the site is issued a Post Closure Permit and corrective action is taken.

Other information maintained are ground water contamination statistics from the DEQ's Federal Facilities Restoration and Superfund Office. The Federal Facilities Restoration activities include Department of Defense (DOD) installations (Army, Navy, Air Force, Defense Logistics Agency, and Formerly Used Defense Sites) and a NASA installation for a total of 33 installations. Currently eight Federal Facilities are listed on the National Priority List (NPL) and 25 non-NPL sites. Base Realignment and Closure is occurring at seven facilities. Federal funding from the Department of Defense supports the Federal Facilities Restoration program. The Superfund Program, funded with both Federal and State dollars, carries out activities required by law or legal agreements at 20 NPL sites. Two of these sites have now been cleaned up and delisted. Additional activities within this Office include DEQ's Voluntary Remediation Program and the Brownfields Program. The Voluntary Remediation Program provides a mechanism for eligible participants to voluntarily clean up properties not mandated for remediation under existing environmental laws. This program serves as a mechanism for cleanup of Brownfield sites. There are currently 75 Brownfield sites that are either potential candidates for clean up, formally in the program or have been cleaned up under the program. A combination of registration fee and EPA funding supports the Voluntary Remediation Program. The DEQ's Brownfields Program, funded through EPA, is currently under development. None of these four programs currently collect ground water quality data; they do receive and review data collected by outside sources.

Pesticide Disposal Program: The VDACS, in cooperation with the Virginia Pesticide Control Board, has conducted a highly popular Pesticide Disposal Program since 1990. As of October, 1997 more than 240 tons of unwanted pesticides have been collected from 1455 agricultural producers, pesticide dealers and commercial pest control firms located in 83% of Virginia's counties and independent cities and disposed of safely. Collection and disposal of agricultural pesticides will be carried out in the remaining counties in 1998. The pesticide disposal program has benefited from a high level of interagency cooperation among the VDACS, DEQ, DCR, DCLS, and Virginia Cooperative Extension. Funding to support this program has been pooled from Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and Clean Water Act (Sections 319 Non Point Source and 106 Ground Water Protection) grants and the Office of Pesticide Services program fees.

Pesticide and Ground Water Management Plan: In response to the EPA Pesticides and Ground Water Strategy, the VDACS formed a task force in 1992. This committee comprised of representatives from the water user community, four representatives from the GWPSC, four representatives from the agricultural community, a member from the Board of Agriculture and one from the Virginia Pesticide Control Board. The objective of the task force was to draft a Generic State Management Plan (GSMP) for pesticides and ground water. GSMP development was cooperatively funded by the VDACS, DCR, and DEQ through EPA FIFRA, Clean Water

Act (Sections 319 Non Point Source and 106 Ground Water Protection) grants. The completed GSMP was submitted to EPA Region III in 1993 and received EPA concurrence in 1995. The GSMP established a graduated response plan for pesticides detected in ground water and a process for developing pesticide specific management plans (PSMP) should such be required by anticipated federal rule making and a graduated response approach for managing pesticides identified as potential threats to ground water.

Pesticides in Ground Water Monitoring Project: In preparation for implementation of PSMPs, the VDACS initiated a pilot monitoring project in September, 1994 and completed in March, 1996. A total of 49 shallow bored wells were sampled in eight localities. Samples were analyzed for alachlor, atrazine, cyanazine, metolachlor, simazine and nitrates. At least one pesticide was detected in nine of the wells. One well exceeded the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act for alachlor (2 ppb) with a detection of 9 ppb. Thirty-four wells had detectable levels of nitrate. Seven wells exceeded the MCL established under the Safe Drinking Water Act of 10 ppm. The highest level of nitrate was 17.2 ppm.

CIBA Atrazine Monitoring Study: The VDACS cooperated in an Atrazine Monitoring Study with CIBA Ag Chemicals in 1994. Under this study, 64 drinking water wells were sampled and analyzed for atrazine, simazine, prometon, propazine, ametryn, prometryn, metalaxyl, metolachlor, cyanazine, three metabolites of atrazine, and nitrates. At least one pesticide was found in 19 wells. However, concentrations were generally very low. No wells had pesticide residues at or above the MCL. Fifty-three wells had detectable levels of nitrate and sixteen of these wells had levels of nitrates at or above the MCL of 10 ppm.

Cat Point Creek Watershed-Shallow Ground Water Monitoring: The DCR, in cooperation with the Tidewater Resource Conservation and Development Council, initiated a ground water monitoring study in the Cat Point Creek watershed in December, 1995. Land use in the watershed is dominated by rowcrop agriculture, grasslands, and forestry. The purpose of this ground water study was to begin a multiple-year process to evaluate the effectiveness of integrated crop management (ICM) in reducing the loading of nitrate and pesticides to the shallow water-table aquifer. ICM incorporates nutrient management and pest management into one plan to be followed by producers. In this study, two producers implemented ICM at three different study sites (sites 1-3) beginning in the spring of 1996. A well cluster, consisting of three wells per cluster, was established in each of the ICM fields and in the control fields. Ground water samples for nutrients were collected twice a month between February and July and on a monthly basis for all other months. Pesticide samples were collected in May and November of 1996. Average nitrate concentrations are shown on the chart below. Atrazine was the only pesticide detected in ground water and it was only found in samples collected at the ICM and control fields at site 1 in May 1996. Pesticides were not detected in any of the November, 1996 samples. Ground water monitoring activities were funded through the DEQ's Federal 106 Ground Water Protection Grant.

Polecat Creek Watershed-Shallow Ground Water Monitoring: In June 1997, the CBLAD initiated ground water monitoring for nitrates as part of the Polecat Creek Watershed project. Activities have been funded by the Clean Water Act, Section 319 Non-Point Source grant funds

and Chesapeake Bay grant funds. The USGS is conducting the ground water monitoring in Caroline County. There are two well transects installed adjacent to agricultural land uses and one transect in a residential subdivision. Pending grant applications include determining flow periods, history, and chemistry for ground water in this watershed and, ultimately, attempting to learn if pollution is flowing into surface waters through ground water.

CONCLUSION

Ground water programs in Virginia strive to maintain the existing high water quality. The Virginia Ground Water Protection Steering Committee (GWPSC), established in 1986, continues to meet bi-monthly as a vehicle for sharing information, for directing attention to important ground water issues, and for taking the lead on ground water protection initiatives requiring an interagency approach. This interagency advisory committee is designed to stimulate, strengthen, and coordinate ground water protection activities in the Commonwealth. Ground water protection activities in the Commonwealth are as varied as the funding sources that support them.